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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,249	09/29/2003	Toshio Mikiya	10210/9	3178
757	7590	01/26/2005	EXAMINER	
BRINKS HOFER GILSON & LIONE P.O. BOX 10395 CHICAGO, IL 60610			TALBOT, MICHAEL	
			ART UNIT	PAPER NUMBER
			3722	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/674,249

Applicant(s)

MIKIYA ET AL.

Examiner

Michael W Talbot

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2003 and 08 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Replacement Sheet for Figure 4 filed on 08 November 2004 has been reviewed and approved.

Specification

2. The disclosure is objected to because of the following informalities:

Refer to page 10, line 4, change character reference for "distal rotating shaft 22" to read "proximal rotating shaft 22".

Refer to page 11, line 12, change character reference for "electromagnetic base 51" to read "electromagnetic base 41".

Refer to page 13, line 19, change character reference for "rotating axis assembly 18" to read "rotary shaft assembly 18".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 12, it is unclear as to the phrase "for holding the first switch element in an on-state when a starting switch is turned on". Additional detail is required to clearly identify the functional relationship between the first switch element and the starting switch. In addition, it is unclear as to the phrase "to prevent the control signal supply means from generating the on-control signal irrespective of the first switching element being in the on-state".

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Additional detail is required to clearly identify the functional relationship between the on-control signal and the first switch.

Regarding claim 13, it is unclear as to the phrase "for bypassing a current of the photodiode to extinguish the photodiode irrespective of the first switching transistor being in the on-state". Additional detail is required to clearly identify the interaction and function between the photodiode and the first switching transistor.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 5,9,10,11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Shoji et al. '006. With regards to claim 5, Shoji et al. '006 shown in Figures 1-4 an electric drill (3) having a motor (3'), a main switch (9) connected in series between the motor and a power supply (8), a current detector (10) for detecting a load current through the motor, a determination unit (15) for determining if the load current exceeds a first reference value and a control unit (16) for shutting off the current through the motor if the load current exceeds a first reference value, and subsequently supplying current to the motor if the load current decreases below the first reference value. With regards to claim 9, Shoji et al. '006 further shows a second determination unit (12) for determining if the load current exceeds a second reference value and a load current indication unit (13,14) for shutting off the current through the motor if the load current exceeds a first reference value, and subsequently supplying current to the motor if the load current decreases below the first reference value. With regards to claim 10, the current detector outputs a voltage corresponding to the load current and the determination unit receives

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and compares the voltage to a first reference value to determine whether the load current exceeds the first reference value (col. 4, lines 51-68 and col. 5, lines 1-21). With regards to claim 11, the current detector outputs a voltage corresponding to the load current and the second determination unit receives and compares the voltage to a second reference value to determine whether the load current exceeds the second reference value (col. 5, lines 29-68 and col. 6, line 1). With regards to claim 12, the control unit comprises an on-state self hold unit (SCR) for holding a first switch element in an on-state when a starting switch is turned on, a control signal supply unit for supplying an on-control signal for turning on the main switch element when the first switch element is in the on-state, a second switch which turns on when the first determination unit determines that the load current exceeds a first reference value and a unit for turning off the second switch when the load current falls below the first reference value (col. 5, lines 35-58).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1,3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gill '123 in view of Omi et al. '956. Gill '123 shows in Figures 1-7 a low profile electric drill (10) having an annular cutter (18) with a plurality of cutting blades (200), a motor (14) for rotating at a high speed, a rotary shaft assembly (16) for rotating the annular cutter having its axis (A) substantially perpendicular from the axis (B) of the rotating shaft of the motor, a feed mechanism (72,80) incorporating a handle (100) for translating the rotary shaft assembly up and down along its axis and a magnetic base (20) for securing the electric drill to the workpiece. Gill

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'123 lacks the presence of the cutting blades having cemented carbide tips. Omi et al. '956 shows in Figure 2 a hole cutter (11) having a plurality of carbide tips, or first cutting teeth (13). In view of this teaching of Omi et al. '956, it is considered to have been obvious to replace the annular cutter of Gill '123 with the hole cutter described in Omi et al. '956 to prevent the blade edges of the first teeth from being damaged and ultimately extending the life of the cutting tool.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gill '123 in view of Shoji et al. '006. Gill '123 lacks an automatic motor stopping/re-driving mechanism. Shoji et al. '006 shows in Figures 3 and 4 an automatic motor stopping/re-driving mechanism comprising a main switch (9) connected in series between the motor (3') and a power supply (8), a current detector (10) for detecting a load current through the motor (3'), a determination unit (15) for determining if the load current exceeds a first reference value and a control unit (16) for shutting off the current through the motor if the load current exceeds a first reference value, and subsequently supplying current to the motor if the load current decreases below the first reference value. In view of this teaching of Shoji et al. '006, it is considered to have been obvious to incorporate an overload protection mechanism to the electric drill of Gill '123 to prevent the electric drill from overloading and causing damage to the drill and/or annular cutter and ultimately extending the life of the drill.

10. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoji et al. '006 in view of Gill '123. Shoji et al. '006 lacks a rotary shaft assembly for rotating the annular cutter having its axis substantially perpendicular from the axis of the rotating shaft of the motor. Gill '123 shows in Figure 2 a rotary shaft assembly (16) for rotating the annular cutter having its axis (A) substantially perpendicular from the axis (B) of the rotating shaft of the motor. In view of this teaching of Gill '123, it is considered to have been obvious to realign the

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orientation of the rotary shaft assembly and the motor shaft of Shoji et al. '006 to increase the drill's usability range and to provide a more compact design.

11. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shoji et al. '006 in view of Omi et al. '956. Shoji et al. '006 lacks the presence of the cutting blades having cemented carbide tips and a plurality of swarf exhaust grooves. Omi et al. '956 shows in Figures 1 and 2 a hole cutter (11) having a plurality of carbide tips, or first cutting teeth (13) and a plurality of cutting chip discharge passages (18). In view of this teaching of Omi et al. '956, it is considered to have been obvious to replace the annular cutter of Shoji et al. '006 with the hole cutter described in Omi et al. '956 to prevent the blade edges of the first teeth from being damaged, to provide an effective means of discharging the chips and ultimately extend the life of the cutting tool.

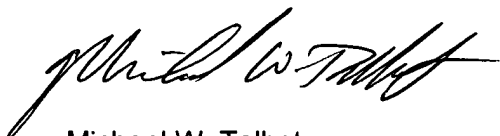
Allowable Subject Matter

11. Claim 13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

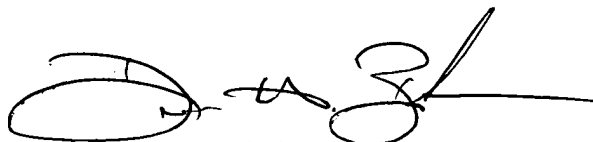
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12. Any inquiry concerning the content of this communication from the examiner should be directed to Michael W. Talbot, whose telephone number is 571-272-4481. The examiner's office hours are typically 8:30am until 5:00pm, Monday through Friday. The examiner's supervisor, Mr. Derris Banks, may be reached at 571-272-4419

In order to reduce pendency and avoid potential delays, Group 3720 is encouraging FAXing of responses to Office Actions directly into the Group at FAX number 703-872-9306. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers, which require a fee, by applicants who authorize charges to a USPTO deposit account. Please identify Examiner Michael W. Talbot of Art Unit 3722 at the top of your cover sheet.



Michael W. Talbot
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Art Unit 3722



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